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ing telescope. Upon these it is unnecessary to dwell. The changes of position are to be determined by referring the telescope, from time to time, either to a distant fixed mark, or to a fixed collimator. In the Magnetical Observatory of Dublin, the telescope of the transit instrument is used as a collimator, and thus the position of the reading telescope is referred immediately to the astronomical meridian.

Sir Robert Kane laid before the Academy some specimens of the series of maps now being prepared in the Museum of Irish Industry, illustrative of the distribution of the values of land in Ireland. The principle of the construction of these maps was described by Sir Robert Kane to consist in the reduction of the numerical results of the Government valuation of Ireland, now in process of publication, under the direction of Mr. Griffith, to such system of classification, indicated by characteristic colours, as would show the manner in which the soils of different financial values are distributed over the country. The specimens laid before the Academy comprised two sets of maps, of which the one showed the registered valuation of townlands; the second, the values of groups of townlands reduced to an average of value. The method employed was the following. Sir Robert Kane, having found by consultation with experienced agriculturists that the unit of difference of value might be taken as sufficiently small for practical purposes at two shillings per statute acre, reduced the values of townlands to a scale of ascending rates, from zero to thirty-six shillings per acre, and then, having transferred to the county index maps of the Ordnance Survey the boundaries of townlands, which are engraved only on the maps of the six-inch scale, those are coloured with tints respectively indicative of the values, and thus a pictorial representation of the distribution of the different classes of land is obtained. As the map so formed becomes, however, very detailed, the number of tints very numerous and very much intermingled, and hence,

although rendered necessary by the investigations as to the nature of soils with which Sir Robert Kane is occupied, it was important also to present a more general view of the distribution of those classes of soils, which would embrace a large range of values, and constitute, in fact, a generalization of the former, or map of detail. For this purpose, the system of colourings employed in the detailed map had been based upon the use of groups of colours; thus, the really waste lands, as from value zero to two shillings, being marked in Indian ink, the class of inferior lands were all indicated by various tints of brown; the class of medium soils were indicated by various shades of green and yellow; the class of superior soils with various tints of blue and purple; and, finally, the class of soils whose values are above thirty-two shillings are practically found to derive their advantages more from artificial and local circumstances than from intrinsic constitution, and these are all coloured with tints of red. The different classes of land are thus indicated by five typical tints:

Black,	. . . .	Waste lands.
Brown,	. . . .	Soils of inferior value.
Yellow,	. . . .	Soils of medium value.
Blue,	. . . .	Soils of superior value.
Red,	. . . .	Soils of factitious value.

The indications thus obtained are very illustrative of the several influences on which the practical values of soils depend. The elevation above the sea, the proximity of towns, the direction of great roads, evidently determining, together with the chemical constitution of the soil and the geological character of the locality, the practical result on which the financial value depends.

Sir Robert Kane was led to the construction of these maps from his anxiety to obtain a term of comparison for the fertile value, as deduced from the chemical composition of the soils

which are now being analysed in the laboratory of the Museum of Irish Industry, under his direction. He has fully recognised that the chemical composition of a soil will indicate its power to supply the materials necessary for the growth of plants, but its practical fertility will depend also on other mechanical and meteoric conditions; and to eliminate these, and to estimate their relative influences, Sir Robert Kane found that it would be highly valuable to contrast, under the form of maps, the chemical constitution of the soils of the several districts, and their relations to climate, with the practical standard of value as given by Mr. Griffith's official valuation, the conversion of the numerical estimates of which into a visible and pictorial representation has been the principle of construction of the maps now laid before the Academy.

Professor Oldham called the attention of the Academy to the importance of connecting the geological structure of a country with all such inquiries as regard the distribution of soils of different value. The county of Wicklow—a soil map of which, coloured from Mr. Griffith's valuation, Sir Robert Kane had exhibited—was one which well illustrated this; and as the geological map of that county, just published by the Geological Survey, had been presented to the Academy on that evening, a reference to it would shew the very remarkable connexion which existed between the occurrence of certain geological deposits, and the existence of soils of certain values. On this map, *for the first time*, the more recent geological deposits—the marls and gravels—of Wicklow, were represented, in addition to the more solid geology of the district. This was accomplished by using for these recent and more superficial deposits an engraved tint, independent of, and in addition to, the conventional colours adopted to represent the different groups of soils. Now, a reference to this map would at once show that all that portion of the map which, on Sir Robert Kane's map, represented by his colours the

soils of high values, was exclusively confined to that portion which, on the geological map, was included under this engraved tint, or in which these more recent deposits of marl, &c., occurred. In several cases, Professor Oldham stated, on preparing the maps separately, and comparing them, it was found that the boundary line marking the limits of these soils of higher value, as given by the townland valuation of Mr. Griffith, was also for miles found to be the boundary line marking the limits of these recent deposits. Mr. Oldham also remarked how erroneous any view of the distribution of soils of various money values would be, derived from a consideration of these values, as deduced from a valuation by townlands. The money value per acre being obtained by dividing the number of acres in the townland into the estimated value of the whole townland, an average value per acre may be obtained, and represented on the map, which will give a very mistaken view of the distribution of soils in that townland. Several cases of this also occur in the county of Wicklow, where whole townlands of considerable size should, as deduced from the townland valuation, be represented by a colour giving an appearance of much higher money value per acre than the adjoining townlands; this erroneous appearance arising simply from the occurrence of richer soils in some very limited portion of such townland, which, thus taken with the remainder of the townland, gives a higher average, and, therefore, a mistaken view of the distribution.

These views afforded a strong confirmation of the general relative accuracy of Mr. Griffith's valuation. And if the valuation by holdings (and not by townlands) were complete, a still more valuable and important comparison might be instituted. It appeared, however, desirable to notice these points, even in the present stage of the inquiry, as most of the soils on which Sir Robert Kane had experimented had been procured by the officers of the Geological Survey of Ireland, under Mr. Oldham's directions.

Sir Robert Kane observed, in explanation of the above remarks, that he could not at all admit the coincidence Professor Oldham asserted between the deposits marked on the geological map, and the lands of highest value depicted on the map of Sir Robert Kane's construction. It is true there exists along the east coast of Wicklow a quantity of clays and marls, and the lands in that locality are of superior value ; but it is at once seen that these lands are situated all along the great line of intercourse from Dublin to Wexford, and that they group round the principal towns of Bray, Wicklow, and Arklow, as centres, showing that, although certain geological materials must be present as the fundamental basis for the agricultural value of a district, the financial value, in practical cases, is specially determined by the influence of economic and social causes. This is peculiarly shown by the relations of the western side of the same county, where it is seen that the values are quite independent of the recent deposits marked on the geological map, the highest values grouping themselves round the towns, and localities occupied by recent geological deposits being, in many cases, estimated as of the inferior degree of value. The valuation map of Kildare is also peculiarly useful in showing this, as the great lines of western and south-western traffic are prominently displayed by the greater value of the lands along them, and also the higher money price of the land round towns is similarly shown ; but this arrangement of the values does not connect itself, in any intimate degree, with the differences of geological character which that county is known to present.

In regard to the objection that the unit of valuation being a townland, and that, in a townland consisting partly of bad and partly of good land, the average value might be incorrect for each, Sir Robert Kane remarks, that the instances of those irregularities are very rare, and do not affect the result, as they disappear in the second class of maps, where the groups of values are united to frame a classification adapted to practice.

Finally, Sir Robert Kane remarked, that Professor Oldham was somewhat obscure in stating that the soils are collected under his direction, to be examined by Sir Robert Kane. The collection of soils is being made by direction of the Chief Commissioner of Woods, upon the application of Sir Robert Kane, and the specimens are obtained in the several localities by the officers of the Geological Survey, as the most convenient mode of procuring them.

The thanks of the Academy were voted to Sir James Dombrain, for his kindness in undertaking to effect the transmission, from Dingle to Dublin, of a collection of Ogham stones, presented by Mr. Hitchcock to the Museum of the Academy.

NOVEMBER 30TH, 1848.—(STATED MEETING.)

REV. HUMPHREY LLOYD, D. D., PRESIDENT,
in the Chair.

THE Chevalier C. C. J. Bunsen, of Berlin ; C. J. Thomsen, of Copenhagen ; and P. E. Botta, of Paris ; were elected Honorary Members of the Academy in the department of Antiquities.

The Rev. Dr. Robinson read a communication on the relation between the temperature of metallic conductors and their resistance to electric currents. After referring to the researches of Sir Humphrey Davy and others on the same subject, he described and exhibited the instrument used in his experiments, and gave a concise sketch of the mathematical investigations based on them, which led him to the following conclusions.

When a wire of platina is heated by a voltaic current, its resistance to the passage of that current increases with the